CHAPTER V
CONCLUSIONS

This chapter covers the conclusion of this final project and suggestion for future research.

5.1   Conclusion

This project has developed mathematical models and the procedure to calculate the sustainability index of a product. The model and procedure has been implemented into a case study in the production of 1 ton of crumb rubber in PT. Batanghari Barisan, with impact category selected consists of GWP, energy use, water consumption, and cost of production. The resulting sustainability index score is $2,809 \cdot 10^{-2}$. For further clarification, another set of calculation was conducted in order to find the sustainability index score without water consumption impact category accounted for. The resulting sustainability index score is equal to $3,918 \cdot 10^{-6}$. The difference between this score and the original sustainability score means that the statistical-based method that has been developed in this project is affected greatly by the choice of impact categories. This method also produces different result depending on where it is conducted since the constant v is different for each country.

As demonstrated in the result section in Chapter IV, in order to use the method there are few requirements that need to be met beforehand. These requirements consists of the availability of the database of relevant impact category, and characterized factor database. This method also comes with a few drawbacks and advantage over other sustainability assessment methods. The drawbacks consists of the sensitivity of the choice of impact category, and the high infrastructure requirement in order to use the method. The advantage of this method is there is no subjectivity involved during the sustainability index calculation process, and the ability to identify sustainability hotspots easily.

5.2 Further Work

Future research must make sure that the choosen impact category is relevant to the products being compared using this method. Another suggestion for future research is to incorporate social pillar in this method, provided that the social databases has been developed to a point where it can be quantified and used in this method.